CHAPTER TWO

Professionalism and Codes of Ethics

Objectives

After reading this chapter, you will be able to

- Determine whether engineering is a profession.
- Understand what codes of ethics are, and
- Examine some codes of ethics of professional engineering societies.

Late in 1994, reports began to appear in the news media that the latest generation of Pentium ® microprocessors, the heart and soul of personal computers, was flawed. These reports appeared not only in trade journals and magazines aimed at computer specialists, but also in The New York Times and other daily newspapers. The stories reported that computers equipped with these chips were unable to correctly perform some relatively simple multiplication and division operations.

Did Intel do anything unethical? To answer this question, we will need to develop a framework for understanding ethical problems. One part of this framework will be the codes of ethics that have been established by professional engineering organizations.

These codes help guide engineers in the course of their professional duties and give them insight into ethical problems such as the one just described. The engineering codes of ethics hold that engineers should not make false claims or represent a product to be something that it is not. In this chapter, the nature of professions will be examined with the goal of determining whether engineering is a profession. Two representative engineering codes of ethics will be looked at in detail. At the end of this chapter, the Pentium case is presented in more detail along with two other cases, and codes of ethics are applied to analyze what the engineers in these cases should have done.

2.1 INTRODUCTION

When confronted by an ethical problem, what resources are available to an engineer to help find a solution? One of the hallmarks of modern professions are codes of ethics promulgated by various professional societies. These codes serve to guide practitioners of the profession in making decisions about how to conduct themselves and how to resolve ethical issues that might confront them. Are codes of ethics applicable to engineering? To answer this question, we must first consider what professions are and how they function, and decide if this defi nition applies to engineering. Then we will examine codes of ethics in general and look specifically at some of the codes of engineering professional societies

2.2 IS ENGINEERING A PROFESSION?

In order to determine whether engineering is a profession, the nature of professions must first be examined. As a starting point, it will be valuable to distinguish the word "profession" from other words that are sometimes used synonymously with "profession": "job" and "occupation." Any work for hire can be considered a job, regardless of the skill level involved and the responsibility granted. Engineering is certainly a job—engineers are paid for their services—but the skills and responsibilities involved in engineering make it more than just a job. Similarly, the word "occupation" implies employment through which someone makes a living. Engineering, then, is also an occupation. *How do the words "job" and "occupation" differ from "profession?"*

Neither of these senses of the word “professional” is applicable to engineers. There are no amateur engineers who perform engineering work without being paid while they train to become professional, paid engineers. Likewise, the length of time one works at an engineering-related job, such as an engineering aide or engineering technician, does not confer professional status no matter how skilled a technician one might become.

To see what is meant by the term “professional engineer,” we will first examine the nature of professions.

2.2.1 What Is a Profession?

What are the attributes of a profession?

1. Work that requires sophisticated skills, the use of judgment, and the exercise of discretion. Also, the work is not routine and is not capable of being mechanized.

2. Membership in the profession requires extensive formal education, not simply practical training or apprenticeship.

3. The public allows special societies or organizations that are controlled by members of the profession to set standards for admission to the profession, to set standards of conduct for members, and to enforce these standards.

4. Significant public good results from the practice of the profession.

2.2.1 What Is a Profession?

The terms "judgment" and "discretion" used in the first part of this definition require a little amplifi cation. Many occupations require judgment every day. A secretary must decide what work to tackle first. An auto mechanic must decide if a part is sufficiently worn to require complete replacement, or if rebuilding will do.

In a profession, "judgment" refers to making significant decisions based on formal training and experience. In general, the decisions will have serious impacts on people's lives and will often have important implications regarding the spending of large amounts of money.

The first definition involves being discrete in the performance of one's duties by keeping information about customers, clients, and patients confidential. This confidentiality is essential for engendering a trusting relationship and is a hallmark of professions. While many jobs might involve some discretion, this definition implies a high level of significance to the information that must be kept private by a professional.

The other definition of discretion involves the ability to make decisions autonomously. When making a decision, one is often told, "Use your discretion." This definition is similar in many ways to that of the term "judgment" described previously. Many people are allowed to use their discretion in making choices while performing their jobs. However, the significance and potential impact of the decision marks the difference between a job and a profession.

One thing not mentioned in the definition of a profession is the compensation received by a professional for his services. Although most professionals tend to be relatively well compensated, high pay is not a sufficient condition for professional status. Entertainers and athletes are among the most highly paid members of our society, and yet few would describe them as professionals in the sense described previously. Although professional status often helps one to get better pay and better working conditions, these are more often determined by economic forces.

Before continuing with an examination of whether engineering is a profession, let's look at two occupations that are definitely regarded by society as professions: medicine and law. Medicine certainly fits the definition of a profession given previously. It requires very sophisticated skills that can't be mechanized, it requires judgment as to appropriate treatment plans for individual patients, and it requires discretion. (Physicians have even been granted physician–patient privilege, the duty not to divulge information given in confi dence by the patient to the physician.) Although medicine requires extensive practical training learned through an apprenticeship called a residency, it also requires much formal training (four years of undergraduate school, three to four years of medical school, and extensive hands-on practice in patient care).

Medicine has a special society, the American Medical Association (AMA), to which a large fraction of practicing physicians belong and that participates in the regulation of medical schools, sets standards for practice of the profession, and promulgates a code of ethical behavior for its members. Finally, healing the sick and helping to prevent disease clearly involve the public good. By the definition presented previously, medicine clearly qualifies as a profession. Similarly, law is a profession. It involves sophisticated skills acquired through extensive formal training; has a professional society, the American Bar Association (ABA); and serves an important aspect of the public good.

2.2.2 Engineering as a Profession